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10/568,334	07/26/2006	Kazuo Nagatani	FUIX 22.371 (100794-01041)	6168
26304 7590 10/06/2009 KATTEN MUCHIN ROSENMAN LLP 575 MADISON AVENUE NEW YORK, NY 10022-2585			EXAMINER HUANG, DAVID S	
			ART UNIT 2611	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,334	Applicant(s) NAGATANI ET AL.	
	Examiner DAVID HUANG	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/13/2006, 1/25/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The references listed in the Information Disclosure Statement(s) filed on 2/13/2006 and 1/25/2007 have been considered by the examiner (see attached PTO-1449 form or PTO/SB/08A and 08B forms).

Election/Restrictions

3. Applicant's election without traverse of Group I, Claims 1-22 in the reply filed on 7/2/2009 is acknowledged.

Claim Objections

4. Claims 1-22 objected to because of the following informalities:

Claim 1, line 5 recites "the deviation of the DC components," but makes no prior reference to either a deviation or DC components. It is suggested to applicant to change the claim to read, "a deviation of DC components".

Claim 2, lines 4-5 recite "the deviation of the DC components," but makes no prior reference to either a deviation or DC components. It is suggested to applicant to change the claim to read, "a deviation of DC components".

Claim 3, lines 4-5 recite "the deviation of the DC components," but makes no prior reference to either a deviation or DC components. It is suggested to applicant to change the claim to read, "a deviation of DC components".

Art Unit: 2611

Claim 4, lines 4-5 recite "the deviation of the DC components," but makes no prior reference to either a deviation or DC components. It is suggested to applicant to change the claim to read, "a deviation of DC components".

Claim 5, lines 4-5 recite "the deviation of the DC components," but makes no prior reference to either a deviation or DC components. It is suggested to applicant to change the claim to read, "a deviation of DC components".

Claim 6, lines 4-5 recite "the deviation of the DC components," but makes no prior reference to either a deviation or DC components. It is suggested to applicant to change the claim to read, "a deviation of DC components".

Claim 8, line 4 recites "the vector space," but should be "a vector space".

Claim 18, line 2 recites "dispersion monitor unit which monitors the dispersion," but should be "a dispersion monitor unit which monitors a dispersion".

Claim 19, line 3, "the dispersion" should be "a dispersion".

Claims 9-17 and 20-22 are dependent on objected claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 1-22** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2611

Claim 1 recites the limitation "the vector sum" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim. For examination on the merits, the limitation will be read as "a vector sum".

Claim 1 recites the limitation "the expectation value of the product of the inner product ...indicating the increment" in lines 7-8. There is insufficient antecedent basis for these limitations in the claim. For examination on the merits, the limitation will be read as "*an* expectation value of *a* product of *an* inner product... indicating *an* increment".

Claim 1, lines 8-9 recite "the increment of said deviation in the order of time series," but it is unclear what this limitation means. This "in the order of time series" language is repeated in subsequent claims as well as in the specification, and appears to be a literal translation into English from a foreign document. For examination on the merits, the "in the order of time series" language will be understood to refer to different sample times.

Claim 1 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: The relationship between the adaptive control unit functioning to update the compensation vector, and the unit functioning to add the compensation vector to an offset vector. It is suggested to applicant to amend line 10 such that the adaptive control unit "adds the *updated* compensation vector to the an offset vector" to establish the relationship between the updating and the adding.

Art Unit: 2611

Claim 2 recites the limitation "the vector sum" in line 2. There is insufficient antecedent basis for this limitation in the claim. For examination on the merits, the limitation will be read as "a vector sum".

Claim 2 recites the limitation "the expectation value of the product of the inner product ...indicating the increment" in lines 7-8. There is insufficient antecedent basis for these limitations in the claim. For examination on the merits, the limitation will be read as "*an* expectation value of *a* product of *an* inner product... indicating *an* increment".

Claim 2, lines 8-9 recite "the increment of said deviation in the order of time series," but it is unclear what this limitation means. This "in the order of time series" language is repeated in the specification, and appears to be a literal translation into English from a foreign document. For examination on the merits, the "in the order of time series" language will be understood to refer to different sample times.

Claim 2 recites "a deviation monitor unit which creates a vector signal... by quadrature-demodulating," in lines 2 and 4. However, it is unclear what is being quadrature-demodulated. For examination on the merits, claim 2 will be read in view of claim 1, which quadrature demodulates the result of the A/D-converting.

Claim 3 recites the limitation "the vector sum" in line 2. There is insufficient antecedent basis for this limitation in the claim. For examination on the merits, the limitation will be read as "a vector sum".

Claim 3 recites the limitation "the expectation value of the product of the sum of the inner product ...indicating the increment" in lines 7-8. There is insufficient antecedent basis for

Art Unit: 2611

these limitations in the claim. For examination on the merits, the limitation will be read as "*an* expectation value of *a* product of a sum of *an* inner product... indicating *an* increment".

Furthermore, the recited algorithm appears to be missing parameters, since it is unclear and indefinite what is being summed and what are the factors of the product.

Claim 3, lines 8-9 recite "the increment of said deviation in the order of time series," but it is unclear what this limitation means. This "in the order of time series" language is also used in the specification, and appears to be a literal translation into English from a foreign document. For examination on the merits, the "in the order of time series" language will be understood to refer to different sample times.

Claim 3 recites "a deviation monitor unit which creates a vector signal... by quadrature-demodulating," in lines 2 and 4. However, it is unclear what is being quadrature-demodulated. For examination on the merits, claim 3 will be read in view of claim 1, which quadrature demodulates the result of the A/D-converting.

Claim 3 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: The relationship between the adaptive control unit functioning to update the compensation vector, and the unit functioning to add the compensation vector to an offset vector. It is suggested to applicant to amend line 10 such that the adaptive control unit "adds the *updated* compensation vector to the an offset vector" to establish the relationship between the updating and the adding.

Art Unit: 2611

Claim 4 recites the limitation "the vector sum" in line 2. There is insufficient antecedent basis for this limitation in the claim. For examination on the merits, the limitation will be read as "a vector sum".

Claim 4 recites the limitation "the expectation value of the product of the sum... between the inner product ...indicating the increment" in lines 7-9. There is insufficient antecedent basis for these limitations in the claim. For examination on the merits, the limitation will be read as "*an* expectation value of *a* product of a sum between *an* inner product... indicating *an* increment". Furthermore, the recited algorithm appears to be missing parameters, since it is unclear and indefinite what is being summed and what are the factors of the product.

Claim 4, line 9 recite "the increment of said deviation in the order of time series," but it is unclear what this limitation means. This "in the order of time series" language is repeated in the specification, and appears to be a literal translation into English from a foreign document. For examination on the merits, the "in the order of time series" language will be understood to refer to different sample times.

Claim 4 recites "a deviation monitor unit which creates a vector signal... by quadrature-demodulating," in lines 2 and 4. However, it is unclear what is being quadrature-demodulated. For examination on the merits, claim 4 will be read in view of claim 1, which quadrature demodulates the result of the A/D-converting.

Claim 5 recites the limitation "the vector sum" in line 2. There is insufficient antecedent basis for this limitation in the claim. For examination on the merits, the limitation will be read as "a vector sum".

Claim 5 recites "the inner product," "the increment," "the compensation vector" and "the expectation value" in lines 6-9. There is insufficient antecedent basis for these limitations in the claim. For examination on the merits, the limitation will be read as "an inner product," "an increment," "a compensation vector" and "an expectation value" respectively.

Claim 5, lines 8-9 recite "the increment of said deviation in the order of time series," but it is unclear what this limitation means. This "in the order of time series" language is also used in the specification, and appears to be a literal translation into English from a foreign document. For examination on the merits, the "in the order of time series" language will be understood to refer to different sample times.

Claim 5 recites "a deviation monitor unit which creates a vector signal... by quadrature-demodulating," in lines 2 and 4. However, it is unclear what is being quadrature-demodulated. For examination on the merits, claim 5 will be read in view of claim 1, which quadrature demodulates the result of the A/D-converting.

Claim 5 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: The relationship between the adaptive control unit functioning to update the compensation vector, and the unit functioning to add the compensation vector to an offset vector. It is suggested to applicant to amend line 10 such that the adaptive control unit "adds the *updated* compensation vector to the an offset vector" to establish the relationship between the updating and the adding.

Art Unit: 2611

Claim 6 recites the limitation "the vector sum" in line 2. There is insufficient antecedent basis for this limitation in the claim. For examination on the merits, the limitation will be read as "a vector sum".

Claim 6 recites "the inner product," and "the compensation vector" and "the expectation value" in lines 6-8. There is insufficient antecedent basis for these limitations in the claim. For examination on the merits, the limitation will be read as "an inner product," "a compensation vector," and "an expectation value" respectively.

Claim 6 recites "a deviation monitor unit which creates a vector signal... by quadrature-demodulating," in lines 2 and 4. However, it is unclear what is being quadrature-demodulated. For examination on the merits, claim 6 will be read in view of claim 1, which quadrature demodulates the result of the A/D-converting.

Claim 6 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: The relationship between the adaptive control unit functioning to update the compensation vector, and the unit functioning to add the compensation vector to an offset vector. It is suggested to applicant to amend line 9 such that the adaptive control unit "adds the *updated* compensation vector to an offset vector" to establish the relationship between the updating and the adding.

Claim 7, lines 3-5 recite the deviation monitor unit generates said vector signal by A/D-converting the result of processing applied to said vector sum and by performing a processing inverse to the processing in a digital area and then performing a quadrature-modulation.

Art Unit: 2611

However, these limitations conflict with those recited in claim 1. Claim 1, lines 2-4 recite A/D-converting the vector sum of the results of processing applied to two signals, whereas claim 7, line 3-4 recites A/D-converting the result of processing applied to said vector sum. Thus, it is unclear whether the A/D-converting is applied to the sum itself as in claim 1, or to the result of processing applied to the sum, as in claim 7. For examination on the merits, the claim will be interpreted as best understood.

Claim 7, lines 5 recites generating said vector signal by "performing a quadrature-modulation". However this conflicts with claim 1, line 4, which discloses generating the vector signal by quadrature-demodulating. For examination on the merits, the claim will be interpreted as best understood.

Claim 9 recites "said adaptive control" in line 3. There is insufficient antecedent basis for this limitation in the claim. Line 4 recites "the larger value as said deviation is the larger". There is insufficient antecedent basis for "the larger value" and "the larger" in the claim. For examination on the merits, the claim will be interpreted as best understood.

Claim 10 recites "said adaptive control" on line 3 and "the larger value" and "the larger absolute value" on line 4. There is insufficient antecedent basis for this limitation in the claim. For examination on the merits, the claim will be interpreted as best understood.

Claim 11 recites "said deviation monitor unit smoothes said DC component the more over a short section as the deviation determined in advance is the larger". This language is awkward and it is unclear what the limitation means. For examination on the merits, the claim will be interpreted as best understood.

Art Unit: 2611

Claims 12-14 are similar to claim 11, and contains similarly defective and awkward language.

Claim 20 recites "the DC component superposed on said input signal" on line 4. There is insufficient antecedent basis for this limitation in the claim. It is unclear if this is a new limitation or refers to the DC component superposed on the vector signal as in claim 1, line 5. For examination on the merits, the limitation will be read as "a DC component superposed on said input signal".

Claim 21 recites "the DC component superposed on said input signal" on lines 3-4. There is insufficient antecedent basis for this limitation in the claim. It is unclear if this is a new limitation or refers to the DC component superposed on the vector signal as in claim 1, line 5. For examination on the merits, the limitation will be read as "a DC component superposed on said input signal".

Any of claims 7-22 not specifically addressed above are dependent on rejected claim 1, and are also rejected.

Allowable Subject Matter

7. Claims 1-22 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hori et al. (US 2003/0108120) discloses a predistortion amplifier.

Huang et al. (US 2003/0095607) discloses direct transmitter self-calibration.

Art Unit: 2611

Ratto et al. (US 2002/0018531) discloses correction of DC-offset of I/Q modulator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID HUANG whose telephone number is (571)270-1798.

The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSH/dsh
9/30/2009
/David Huang/
Examiner, Art Unit 2611
/Shuwang Liu/
Supervisory Patent Examiner, Art Unit 2611